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**THE ORTHOPTERA OF THOMAS COUNTY, GEORGIA, AND LEON COUNTY,  
FLORIDA.**

BY JAMES A. G. REHN AND MORGAN HEBARD.

The material on which the following study is based comprised over three thousand specimens, of ninety-four species. The majority of this extensive series is contained in the collection of the junior author, but a thoroughly representative series is in the collection of the Academy of Natural Sciences of Philadelphia, part being collected by Rehn and part presented by Hebard.

The series studied contains material taken on dates extending from December, 1902, to April, 1904. The junior author resided at Thomasville from December, 1902, to May, 1903, and from late November, 1903, to early April, 1904. During the summer of 1903 a collector was employed to work in the vicinity of Thomasville, and a very good series of the summer and early autumn species obtained. The senior author spent from March 14 to April 5, 1904, with Mr. Hebard and they together examined considerable of the surrounding country. Several trips were made over the State line into Leon county, the adjoining portion of Florida, one in 1903 and two in 1904.

The critical portion of the following paper is almost entirely the work of the senior author, while the field notes, which are followed by M. H., are the work of the junior author, but they agree in all the statements made.

As a general description of the country is usually of great value in a faunistic paper, we have summarized the principal features of the region under consideration and also made some notes on the occurrence, time of abundance and local environment of a number of the more interesting species of Orthoptera.

Thomasville, Georgia, the county seat of Thomas county, is situated in the southwestern part of the State, some twelve miles distant from the Florida line and about fifty miles from Alabama. The surrounding country is gently rolling and covered with fine pine forests, and divided into large plantations, many of which have the greater part of their area cleared and under cultivation, the chief crops being corn and cotton. Sweet potatoes, sugar cane and peanuts are also extensively

produced. The pine forests are usually wholly composed of the long-leaf variety, but here and there a forest of nothing but the short-leaf pine is to be found. In the pine woods there are hardly any other trees excepting occasional oaks, sweet gums and dogwoods. These woods are very open and there being hardly any undergrowth, a wagon may be driven through them almost anywhere. The ground is in nearly all places thickly carpeted with wire-grass and other small plants, with here and there a dense clump of gall-berry bushes, while everywhere the long pine needles are thickly scattered. Throughout these woods the yellow jasmine grows in great luxuriance and when in flower is most beautiful. In each depression of the land a stream is to be found, called in this country a "branch." These streams are almost invariably filled with a thick growth of magnolias, bay, black gum, tulip, beech and other trees, while the undergrowth of blackberry, grape and other vines is usually very dense, and an occasional thicket of pipe cane adds to the difficulty of following the course of one of these streams. To this must be added the fact that in many places the ground on both sides of the "branch" is boggy and there are muddy holes covered by sphagnum between the roots of the trees. There are a few places where the pine forests have been cut down and the land left uncultivated; in these situations has sprung up a dense growth of scrub oak, which has completely choked out almost all other vegetation. In other unclaimed fields the short-leaf pine thrives, and less frequently one finds a heavy growth of young long-leaf pines.

The Ocklockonee river flows within five miles of the town, and is a stream about thirty feet in width during the dry part of the year, but during the heavy rains it spreads for a mile or more over the nearby country, which is in most places low and swampy.

Along portions of the river bank are dense swamps of gum, cypress and other trees. Through these swamps run numerous ridges of clay and sand with here and there shallow lagoons, which with the great height of the trees and the numbers of fallow and mouldering logs lend to these bottoms a very wild aspect. These places are the only situations in this part of the country where deer, wildcats and an occasional bear may be found. The character of the country just across the line in Leon county, Florida, differs noticeably from that about Thomasville. It is more rolling, with small lakes in every depression. This country is unhealthy, for in the summer these lakes dry up exposing to the sun a great amount of decayed vegetable matter. The largest lakes near Thomasville are Iamonia and Miccosukee. They are distant from the town about fifteen and eighteen miles respectively.

The former, although some miles long, occasionally goes dry in a very short space of time, and fills up again with as great rapidity. The water has been found to flow in and out through a subterranean passage, and once, when the lake went dry, a peculiarly marine fish was taken from the opening through which the water had receded. This opening was filled with a great number of fish, although they had been left dead by the thousand on the bed of the lake when the water disappeared.

The soil of this region is rich, but not deep, the red clay, which is everywhere, often being within a few inches of the surface of the high ground where, however, the crops seem to grow as well as anywhere.

The Orthoptera of the country around Thomasville is best represented in the pine woods. Here among the wire-grass and pine needles which carpet the ground many interesting species are to be found. In early December, before the frosts have thinned their numbers, *Amblytropidia occidentalis*, *Aptenopedes sphenariooides* and *Radinotatum brevipenne* are most abundant through these forests; *Schistocerca damnifica*, *Melanoplus keeleri*, *M. nigrescens* and *M. scudderi* are then by no means common but more restricted to colonies. Among the really scarce species are *Melanoplus sylvestris* and *Gymnoscirtetes pusillus*. By December *Orphulella pratorum*, which swarms in the open spots of the woods in the fall, becomes quite scarce, as is the case with *Arphia xanthoptera*, and to a considerable extent that of *Dictyophorus guttatus*. By the end of December almost all Orthoptera disappears owing to the cold weather, and during the following two months the conditions usually remain the same. In March, at the advent of warm weather, *Amblytropidia occidentalis* and *Aptenopedes sphenariooides* are again very plentiful and *Schistocerca americana* appears common in certain localities, while *S. damnifica* and *Arphia sulphurea* are generally noticed. The *Forficulidae* is represented by several species, only one of which, *Labia burgessii*, is abundant. Infrequently *Labia minor* and *Anisolabis annulipes* are found, and occasional small colonies of *Labia guttata* and *Spongophora brunneipennis* located. These colonies are usually found in dead magnolias or other hardwood trees, but occasional specimens may be taken from bark on pine logs. The *Blattidae* is represented by *Ceratinoptera lutea*, which is sometimes very common among the dead leaves under oaks, sweet gums and hickories. In the pine logs between December and March many immature *Ischnoptera* may be taken by peeling off the loose bark; mature individuals begin to appear about the middle of April, and by May most specimens are fully developed. The most plentiful species of

*Mantidae* is *Stagmomantis carolina* and its favorite habitat is a blackberry bush or other low growth, occasionally in the pine woods, but more often in branches and fields. The slender *Thesprotia graminis* is a purely pine woods species, and is found among the wire-grass, where it is so well protected by both form and coloration as to almost defy detection. In the spring *Conocephalus* appears in numbers in the broom sedge and other grasses throughout the pine woods. The *Gryllidae* in the fall before the frosts is represented by a few species, of which *Nemobius ambitiosus* is most plentiful, and it may be found in diminished numbers throughout the winter. Under rubbish *Gryllus* are common, and *Orocharis grylloides* may be found hibernating under signs on oak trees. During the spring, in certain restricted localities, *Falculicula hebardi* is quite plentiful among the wire-grass, and later in the summer *Hapithus brevipennis*, while *Ecanthus* appears frequenting the bushes and shrubs, especially those growing on the sides of the branches. The Orthoptera found in these branches differs greatly from that of the pine woods. Here in the late fall hardly anything is to be found except *Nemobius carolinus* and *exiguus* which are plentiful, the former in beds of sphagnum only; and some *Paroxya floridiana* restricted to a few sunny spots. In the spring, however, *Tettigidea lateralis* is very common in all grassy spots, and in certain localities *Tettigidea spicata* is found. In other locations *Acridium arenosum*, *Paratettix texanus* and *Neotettix femoratus* may be taken, the best places being where these streams empty into a lake or flow through low sandy stretches of fields. The species of *Acrididae* found in the fields just before the heavy frosts are *Chortophaga viridifasciata*, *Melanoplus propinquus* and *Orphulella pratorum*, all in great numbers; *Psinidia fenestralis*, *Melanoplus atlantis* and *Spharagemon wyomingianum* are moderately common earlier but soon disappear, while *Dichromorpha viridis*, which swarms in the summer, is not in evidence. Among the species found during the summer months are *Hippiscus phaenocopterus*, *H. rugosus*, *Spharagemon bolli*, *Dissosteira carolina* and *Trimerotropis citrina*.

[Family FORFICULIDÆ.

*Labidura bidens* (Olivier).

This species is apparently not uncommon at Thomasville, as specimens were taken May 2, 21, 26 and 29; August 12, and a series of eight the first week in October, 1903. These individuals are indistinguishable from Cuban specimens, and exhibit considerable variation in size, but in color are quite constant.

These specimens were taken in hot weather only and were attracted to the arc lights. (M. H.)

**Anisolabis annulipes** (H. Lucas).

Specimens of this species taken at Thomasville, December 24, 1902 (under pine bark), August 20, September 9, December 9, 1903 (in house), and March 23, 1904, are the first individuals recorded from the United States. In one individual (December 9) the maculations on the limbs are rather weak.

The few specimens of this species taken were all met with accidentally. It appeared to be at all times very scarce. (M. H.)

**Spongophora brunneipennis** (Serville).

A number of specimens (ten) of this species were taken at Thomasville under magnolia bark, December 10, 11 and 13, 1903. They are equally divided between the sexes and are constant in size and coloration. An immature specimen was also taken under pine bark in Leon county, Florida, on April 7, 1903.

All the specimens of this species were taken from under the bark of a dead magnolia tree. They were found in colonies of three or four huddled closely together, and upon the bark which concealed them being pried off they made vigorous attempts to escape. The specimens of this species taken, with hardly an exception, were under bark five or more feet from the ground, where the decayed wood was dry and pithy and not as far gone as that at the foot of the tree. (M. H.)

**Labia minor** (Linnæus).

A specimen of this species from Thomasville, but without further data, was examined.

**Labia guttata** Scudder.

Three female specimens of this species have been examined from Thomasville, one taken January 1, 1903, another January 24, 1903, and the other in Georgia pine woods on March 1, 1904.

A scarce species in this locality, taken from under the bark of dead pine logs. In 1904 but one colony, consisting of four or five specimens, was discovered, although during the year many logs were thoroughly examined. (M. H.)

**Labia burgessii** Scudder.

This species is quite common at Thomasville under the bark of dead trees. A series of over a hundred and fifty specimens, representing the adult condition of both sexes and immature forms, has been examined. This series plainly demonstrates that there is considerable

variation in the size of the adults of both sexes, but coloration appears to be quite uniform, such difference as is apparent being due to the extension of the abdomen, which causes the insect to appear more of a chestnut color than is the case when in normal position. The specimens were all taken in the months of December and March.

This species is seldom to be met with, but when found is almost invariably in very large numbers. In 1903 a few specimens were taken in the woods about Thomasville, and one colony of over forty specimens was discovered in Leon County in a dead pine log under the loose bark. In 1904 but one colony was observed; this was in the trunk of a large magnolia which, though long dead, was still standing. The specimens were all taken from the trunk less than five feet above the ground where the wood was soft, damp and pulpy and the bark loose. By visiting this tree several times and picking off all the loose bark and soft wood over one hundred and fifty specimens were obtained, the specimens usually found singly. This was the same tree on which *Spongophora brunneipennis* was found. Quite a number of immature specimens of *S. brunneipennis* were taken among individuals of this species. (M. H.)

#### Family BLATTIDÆ.

##### *Ischnoptera inæqualis* Saussure and Zehntner.

Immature specimens of what appears to be this species were taken at Thomasville, on March 23 and April 9, 1904. The individuals taken on the latter date were from Linton's Pond, a body of water several miles southeast of Thomasville. All were on oak. A single adult male was taken at Thomasville, on May 6, 1903, and this appears to be unquestionably *inæqualis*. Blatchley has recently recorded this species from Indiana, and with the original localities—North Mexico and Texas—and Costa Rica, we have some idea of the distribution of the species. The immature Thomasville specimens are in such condition that the identification is attended by a little uncertainty, but no other known North American species agrees with them as fully as *inæqualis*.

All the immature specimens taken were found under advertising signs on white oak trees only, and were extremely rapid in their movements. (M. H.)

##### *Ischnoptera johnsoni* Rehn.

This species is represented in the Thomasville collections examined by an adult male taken July 23, 1903, and a series of immature individuals taken December 1, 1903, March 1, 23 and 25, and April 9, 1904. The immature specimens were all taken under signs on trees

or under bark. Naturally some little uncertainty is attached to the identification of the specimens, but they can safely be considered *johsoni*. Some individuals possess light narrow lateral margins to the pronotum, mesonotum and metanotum.

All the immature specimens taken were found under signs on oak trees in company with immature individuals of other species of *Ischnoptera*. When revealed the majority in their hurry fell from the tree and hid in the leaves at its foot, but a few, relying in their protective coloration, would press themselves closely to the bark and remain motionless. (M. H.)

***Ischnoptera uhleriana* Saussure.**

Adult Thomasville specimens of this species taken March 23, April 6, May, July 10 and 25, 1903, have been examined. They fully agree with specimens from Pennsylvania and New Jersey. Data with some specimens informs us they were taken from under pine bark.

This is the most abundant roach found in this region under the bark of dead pine logs. It was hardly ever met with except on pine. (M. H.)

***Ischnoptera major* (Saussure and Zehntner).**

A large series of immature individuals, some nearly adult, we refer to this species. The larger specimens are undoubtedly *major*, but the smaller ones may represent other species as well. The localities represented are Thomasville, Tyty Plantation and the Ocklockonee river, and the dates range from February to October.

Almost all the immature specimens taken of this species were from under the bark of dead pine logs. (M. H.)

***Ceratinoptera lutea* Saussure and Zehntner.**

Several immature specimens of this species were taken at Thomasville on December 31, 1902.

This species is occasionally very abundant in dead oak leaves. Many immature specimens were also seen under signs on trees, especially on sweet gum, in company with immature specimens of *Ischnoptera*. (M. H.)

***Periplaneta americana* (Linnæus).**

This omnipresent species is represented in the collections by a number of Thomasville specimens taken in April, June and December.

***Periplaneta truncata* Krauss.**

This species, which was previously known from the United States by one record from Victoria, Texas,<sup>1</sup> is represented by two females

<sup>1</sup> Caudell, *Proc. U. S. Nat. Mus.*, XXVI, p. 779.

from Thomasville, taken in October, 1903, and on January 9, 1904. These individuals, as is the case with the Texan specimens, are referable to the "var. a" of Saussure and Zehntner.

The specimen of this species which was taken on January 9, 1904, I found dead on the sidewalk of Jackson street, under a large live oak. (M. H.)

#### Family MANTIDÆ.

##### *Stagmomantis carolina* (Johansson).

This species is represented in the collection by immature individuals taken in July and August, and adults taken in August, September and October.

##### *Gonatista grisea* (Fabricius).

A single specimen of this species from Thomasville was examined. It was taken in early winter resting on the dead leaves of a small water oak.

##### *Thesprotia graminis* (Scudder).

This species is represented in the Thomasville material by two somewhat immature individuals taken August 19 and September 30, 1903.

This species is found in the wire-grass which carpets the pine forest, and which it so closely resembles that the closest scrutiny is required to reveal its presence. (M. H.)

#### Family PHASMIDÆ.

##### *Anisomorpha buprestoides* (Stoll).

This species is represented by specimens taken at Thomasville, March 20, 1903, and at Tyty Plantation, Thomas county, December 12, 1903. The latter individuals, a pair, were taken on pine in coitus.

A number of half-grown specimens of this species were taken by beating the gall-berry bushes growing near a "branch" which crosses the river road nearly two miles from town. (M. H.)

#### Family ACRIDIDÆ.

##### *Acridium arenosum* (Burmeister).

This species is found common in the vicinity of water, on sandy beaches and wet soil, but probably is local in its distribution even in such environment, as it was taken at but three points. In a piece of bayou country, amid cypress and black gum, on the Ocklockonee river west of Thomasville, this species was taken on February 29, March 29 and April 1 and 9, 1904. In the vicinity of a small lake in northern Leon county, specimens were taken on March 21, 1903, and March 22, 1904. The series examined consists of sixty specimens, and exhibits

a great amount of variation in the rugosity of the pronotum, the character of the median carina of the pronotum, and a slight amount of color variation, the latter chiefly in the intensity of the pair of spots posterior to the humeral angles.

**Neotettix bolteri** Hancock.

A single specimen of what appears to be this species was taken in Leon county, March 22, 1904, in swampy ground at the edge of a small lake.

**Neotettix femoratus** (Scudder).

A variable and interesting series of specimens from Thomasville, taken in late June, early July, September and October, 1903, and April 9 and 10, 1904, are referable to this species. While a great amount of variation is exhibited by the specimens examined, they appear, after comparison with the type, to represent Scudder's species. Three individuals belong to a type with the posterior portion of the pronotum elongate.

This species, during the summer, was found moderately plentiful.  
(M. H.)

**Paratettix texanus** Hancock.

Three Thomasville specimens, two males, one female, are contained in the series examined. They were taken on marshy meadow or sandy beach at Linton's Pond on March 21, April 10, 1904. This species has been recorded from Texas, Louisiana, Mississippi, Georgia and South Carolina. Its status appears to be more likely that of a mere subspecies of *P. cincinnatus*.

**Tettigidea spicata** Morse.

This species is represented by a series of seventeen specimens taken at two localities in Thomas county. At one point about two miles west of Thomasville, in wet pine woods, it was taken on December 14, 1903, April 9, 1904; while on February 29, March 29 and April 1 it was taken in bayou country along the Ocklockonee river. A form with the pronotum elongate is represented by four specimens, two of each sex.

**Tettigidea lateralis** (Say).

This species was very abundant in moist localities in Thomas and Leon counties. In bottom land as well as on sandy stretches and moist meadow this interesting little locust was noted. Specimens examined were taken in the months of February, March, April, July, August and September. The series examined, over one hundred and thirty in number, exhibits a considerable amount of variation in size and in the angulation of the anterior margin of the pronotum.

**Radinotatum brevipenne** (Thomas).

This interesting and peculiar species is mainly a common inhabitant of pine woods in Thomas and Leon counties. It lives among the dried needles and apparently depends for safety more on protective resemblance and coloration than on anything else, as the saltatorial powers are limited and the flight organs useless. Three color types are represented in the series of one hundred and eleven specimens examined, one type being uniform brownish of varying shades, another brownish with the dorsal surface of the head, pronotum and tegmina grass green, and the third brownish with the lateral aspect greenish. From the material examined it would appear that around Thomasville the species is represented by mature individuals in late spring and early summer (April to July), September individuals being extremely small, while a large number of November, December and March specimens show a gradual increase in size. The peculiar character of the subgenital plate of the male is pronounced in specimens taken in November. Color notes from life: Green phase, nymph, Thomasville, Georgia, November 30, 1903; color of the dorsal surface, antennae, eyes, mandibles, labrum, median and anterior limbs, posterior tibiae and tips of the posterior femora wood brown; lateral aspects, face, meso- and metasternum and posterior femora (except the distal portions) apple green. Brown phase, nymph, Thomasville, Georgia, November 30, 1903; general color wood brown, obscurely and rather irregularly lined and spotted with broccoli brown, a rather distinct postocular and pronotal streak being developed; posterior femora with the apical portions blackish. The color of adult males is grass green on the dorsal surface of the pronotum and tegmina, the abdomen, lateral aspect and dorsal surface of the femora as in the immature; inferior margin of the lateral lobes of the pronotum pale ochraceous. The adult female is uniform wood brown, except the eyes, which are umber obscurely spotted with darker brown. One adult female, however, has a green and brown coloration, but the pattern is exactly the reverse of that found in the males, the green being lateral instead of dorsal. Several specimens examined are strongly overcast with blackish spots.

I noticed many immature specimens of this species pale straw brown in color, and one or two specimens taken were profusely marked with small black dots. On April 7, 1904, I noticed several mature males of this species in the sprouting broom sedge at the edge of the golf course near thick woods. Returning to this place two days later, I took a number of mature males and several females almost adult. These males were nearly all of the green form, while the females were entirely

brown. Returning to this place on the next day, I at last succeeded in taking a mature female. (M. H.)

**Syrbula admirabilis** (Uhler).

Seven specimens of this species taken at Thomasville, in 1903, have been examined. Four of the seven are immature and were taken on June 30, July 6, 7 and 16. The four adults were taken June 30 ( $\delta$ ), July 6 ( $\varphi$ ), September 30 ( $\varphi$ ) and December 14 ( $\varphi$ ). An interesting feature noticed in this series, and substantiated by other material from the Middle Atlantic States, is the transition from a depressed ensiform antennæ in the immature form to a slender, subfiliform type in the adult. From a phylogenetic standpoint this fact would indicate a type with ensiform antennæ, like *Mermiria*, as the ancestor of the genus *Syrbula*.

I captured one female specimen of this species in damp low pine woods in December. (M. H.)

**Amblytropidia occidentalis** (Saussure).

This modestly colored but lively species is almost without exception found in pine and black gum woods, but in pine woods the species is more abundant than elsewhere, being found in association with *Radinotatum* and *Aptenopedes*. The series examined contains ninety-eight specimens from Thomas and Leon counties, and exhibits a great amount of variation in color and some in structure. In some female specimens the pronotum is more expanded than in others, and the head also appears slightly stouter. The amount of color variation is remarkable, though confined to browns and grays. From an extreme blackish-brown form all intergrades are present to types of a uniform sienna and ashy gray. Some individuals are obscurely lined on each side of the median carina of the pronotum. The following color notes are from life: Female, Thomasville, November 30, 1903; general color mars brown and mummy brown spotted and streaked; eyes broccoli brown; posterior femora laterally mars brown, darkest dorsally, above wood brown with a few mars brown spots, beneath pinkish-vinaceous, internally milky white blotched with blackish and dull brown; posterior tibiæ basally wood brown becoming bluish-black apically; abdomen with the dorsal surface pale ochraceous-rufous, laterally wood brown washed blackish basally, each segment with the apical margin milky white; inferior surface pinkish-vinaceous. Female, Thomasville, November 30, 1903; similar to the specimen described above, except that the dorsal surface is overcast with a pale whitish suffusion and the lateral lobes of the pronotum, the pleura and the genæ and postocular regions of the head are suffused with dull orange-rufous. The only

immature specimen in the series examined was taken on November 30. The adults were taken on dates extending from the latter part of October to the early part of April.

This species of the pine forest, although it is singularly protected by its coloration when in its favorite haunt among the pine needles, is, nevertheless, a most wary and active species. Both males and females fly with the greatest rapidity and when alarmed will keep on the wing for a considerable distance. When approached quietly they will spring up with great speed, but only fly a short distance. Diving into a tuft of wire-grass and pine needles, they seem to literally glide down to the most obscure place at the roots of the grass, where, although perfectly hid, they remain alert and upon the approach of anything make another rapid flight to some still safer place. I have never been able to ascertain how these insects are able to start out of the center of a thick tuft of grass at full speed and dive into the very center of another in the space of time required by them. This is the only species I know of that can slip out of one's hand when, after approaching within a few inches of the specimen, one pounces upon it. It can not only do this, however, but can escape with such speed that track of it is very easily lost. (M. H.)

***Orphulella pratorum* Scudder.**

This species is, judging from the amount of material examined, exceedingly abundant at Thomasville from late June to late October, but particularly in September; while individuals taken in November, December, May and early June show its presence then, but probably not in such numbers as in summer and early fall. The series examined numbers four hundred and twenty-four specimens and represents all types and shades of coloration, as well as illustrating the great diversity in size exhibited by specimens of the female sex.

***Dichromorpha viridis* (Scudder).**

This species is represented by a series of one hundred and forty-three specimens from Thomasville, taken in the months from June to December inclusive. As usual in the species, great variation in size is exhibited by the series, and both color forms are represented, the green being greatly in the majority.

***Arphia xanthoptera* (Burmeister).**

This species is represented in the material studied by four specimens, one male and three females, taken at Thomasville, March 16, September 24, November 30 and December 10.

Between December and March a stray specimen of this species may occasionally be met with in the oak and hickory woods. (M. H.)

***Arphia granulata* Saussure.**

A male and female of this species from Thomasville, taken May 27, 1903, have been examined.

***Arphia sulphurea* (Fabricius).**

Specimens of this species were taken in Leon county, and at Thomasville, in March and April, in pine woods. An immature specimen taken in January has also been examined.

This species appeared to be moderately common in the spring of 1903 in pine woods with many scrub oaks about. I found the immature specimens of this species plentiful throughout the winter months in dead leaves under oak, hickory and sweet gum trees. (M. H.)

***Chortophaga viridifasciata* (DeGeer).**

This common species is represented by a series of ninety-two specimens, the brown phase outnumbering the green form. The series covers adult specimens taken in every month of the year.

I have found this species late into December in colonies along the edge of woods. (M. H.)

***Hippiscus phoenicopterus* (Burmeister).**

The species is represented by specimens taken in May (27th) and June (2d and 8th), 1903, at Thomasville.

***Hippiscus rugosus* (Scudder).**

A single specimen taken at Thomasville on August 13, 1903, I have referred to this species. It has, however, cinnabar wings, but structurally is inseparable from Pennsylvania specimens of *rugosus*.

***Dissosteira carolina* (Linnaeus).**

This species is represented by specimens from Thomasville taken May 25 and 26, June 8 and 12, and July 27, and from Metcalfe taken September 17. One specimen taken July 27 is immature.

***Spharagemon bolli* Scudder.**

A single male specimen of this species is included in the material examined. It was taken at Thomasville, July 14, 1903.

***Spharagemon collare wyomingianum* (Thomas).**

A series of nine Thomasville specimens are assigned here with some uncertainty. They agree with New Jersey specimens of *wyomingianum* except for the sharper fastigium, which also forms a more acute angle with the face. Considerable color and minor structural variations are exhibited by this series. The specimens were taken in June, July, August and November.

***Psinidia fenestrata*** (Serville).

This sand-loving species is represented by a series of eighteen specimens taken on dates extending from June to November.

I took one specimen of this species on November 30, a mature female so battered and worn it could scarcely fly. (M. H.)

***Trimerotropis citrina*** Scudder.

This species which is here recorded from the Southeastern States for the first time, is represented by a series of sixteen specimens taken at Thomasville and Metcalfe. May, June and September are the months represented by the material studied.

***Dictyophorus guttatus*** (Stoll).<sup>2</sup>

This large and striking species is fairly numerous in southern Georgia, and attains full size by August. Several imagos taken in August, September and October have been examined, one male being of small size. Another comparatively small male from Brunswick, Glynn county, Georgia, is in the collection of the Academy.

I have found very young specimens of this species as early as the first week in April. They were then in colonies of a dozen or more in the pine woods. (M. H.)

***Stenaoris<sup>3</sup> chlorizans*** Walker.

This cat-tail loving species is represented by several Thomasville specimens and eight individuals from Leon county, Florida. The former series was taken on March 7, 1903, and March 25, 1904, the exact locality being a large boggy meadow cut by numerous streams, formerly covered by a dammed body of water locally known as Mitchell's Pond. Several specimens were also noticed, but not taken, at a large pond several miles north of Thomasville. The Leon county specimens were all taken on the margins of a large pond in the extreme northern part of the county, within half a mile of the Georgia line, on March 21, 1903, and March 22, 1904.

But four of the series examined have the white lateral line distinct, the others being almost unicolorous, two, however, having the upper surface suffused with rosaceous.

I found this interesting species the most numerous among the cat-tails growing in the deep water at the edge of the pond. When alarmed

<sup>2</sup> It is evident that Stoll's *Gryllus guttatus* (*Natuurl. Afbeeld. Beschr. Zabel-springhaanen, Trek-springhanen, Krekels en Kakkerlakken*, p. 23, and *Register*, p. 12, Pl. Xb, fig. 34) is the same as Thunberg's *Dictyophorus reticulatus*, and is two years earlier.

<sup>3</sup> This generic name is revived in place of *Arnilia* Stål, which it antedates by three years. It was proposed (*Catal. Derm. Salt. Brit. Mus.*, IV, p. 651, 1870) for three species, *lanceolata concolor* and *chlorizans* the latter of which can be selected as the type.

it would at once fly swiftly and silently away to the stem of a cat-tail, apparently in a safe place, and would then, when approached, dodge around to the opposite side and remain motionless, pressing itself to the stem, which I noticed would almost invariably be the same color as itself. It could then be taken by a stealthy approach and a quick grasp of the hand, for it seemed to rely on its resemblance to its support and would not take wing unless alarmed by a quick movement or a too close approach. When badly alarmed I noticed several specimens fly up into the trees and hide on the small twigs, as they had before done on the cat-tails. Not one of the species was to be found on the brownish rushes where *Leptysma* was common, which latter species was precisely the color of its surroundings. The flight of this species is much stronger and more rapid than that of *L. marginicollis*, and owing to this fact and the locality in which it is found, it is quite difficult to take a specimen when thoroughly alarmed. Those specimens seen on the meadow where Mitchell's Pond had once been were afforded poor cover, as the grass was short, and I noticed that they would almost always take flight when I was still a number of feet distant, no matter how cautiously I approached. (M. H.)

***Leptysma marginicollis* (Serville).**

This species, which is somewhat similar in habit to the preceding, is represented by specimens taken at Thomasville during March and in Leon county on March 22, 1904.

This species was most numerous among the dried rushes on the edge of the pond in Leon county mentioned as the habitat of the preceding species. The specimens were easily alarmed by a quick movement, but could be easily approached and grasped if this was done in a slow and careful manner. They were as well protected by their color on these brown rushes as the *S. chlorizans* were with their bright green coloration on the cat-tails whose stems were the same color; the latter species, however, showed much less confidence in its concealment and was much more difficult to approach. (M. H.)

***Schistocerca americana* (Drury).**

This elusive and powerful species is represented by eight specimens taken at Thomasville in January, March, May, October and December. Leon county is represented by specimens taken in March.

Much of the time this species is common in the open pine woods. Its flight is powerful and it usually takes refuge on the pine trunks over eight feet from the ground. Its color blends remarkably with the bark, and it, remaining motionless, with hind femora drawn closely to the body ready to spring, does not take flight until closely approached.

Like the two preceding species, even the heaviest females fly well, and I have never seen one jump except when in such close quarters that flight was impossible. (M. H.)

*Schistocerca damnifica* (Saussure).

An interesting series of fifty specimens of this species is included in the material studied. The females are all larger than Northern specimens, and have the median stripe of the pronotum more obscure. The males, however, are very similar to New Jersey representatives, except that the tegmina appear to be slightly longer. The material comprises adults taken in every month in the year except August.

The males of this species are active and are found common in the dead leaves under scrub oaks, hickories, sweet gums and other trees in the pine woods. They fly well and are so much the color of their surroundings that they are very hard to follow. The females are, on the other hand, invariably large and unwieldy, and seem to find great difficulty in even jumping, and they very seldom fly. (M. H.)

*Gymnoscistes pusillus* Scudder.

This very peculiar species was found by Mr. Hebard to be fairly common in one locality near Thomasville, and a series of twenty-one individuals, sixteen males and five females, are included in the series studied. They are quite constant in size, but in a number of other characters considerable variation is exhibited. The anterior and posterior margins of the pronotum are truncate in some, emarginate in others; the number of spines on the external margins of the posterior tibiæ varies from eight to ten; the median carina of the pronotum is quite distinct in some, absent in others, while the inferior portion of the frontal costa varies greatly in the strength of the constriction. Color is rather constant, such variation as is exhibited being in intensity and not pattern. The females are uniformly lighter in color than the males.

The following color notes were made from a fresh male specimen: Dark lateral bars seal brown, light lateral bars pale glaucous green becoming emerald-green on the meta- and mesopleura; dorsal surface a semi-metallic drab becoming quite pale toward the dark lateral bars; eyes of the same color as the dark lateral bars, obscurely spotted with drab; antennæ of the same color as the dorsal surface, strongly suffused with blackish apically; limbs very pale yellowish-green minutely blotched with umber.

I took one specimen of this species in the wire-grass of the pine forest near town on November 30, 1904, but although I searched the locality

carefully for several days no more were taken. A short time later I discovered a colony of this species in a similar situation on the river road, about two miles from town. They were very difficult to capture, as it took the most intent searching before a specimen could be found, and even then it was by no means an easy matter to make the capture, for these small grasshoppers are masters of the art of jumping. They can jump so quickly that owing to their color the eye cannot follow them, and the strangest thing is that they can jump in any direction with such rapidity that it is wholly impossible to see in which direction they have gone. They jump from one tuft of wire-grass to the top of another tuft and there cling tightly to the highest straw ready to make another leap. Although they are so small I have seen them frequently spring several feet. The females, although much heavier than the males, are almost equally agile. This species has the habit of edging around its support when approached and remaining motionless with hind femora drawn close to the body. It can be seen, however, to be watching that which has alarmed it most closely, and on the first quick movement or on too near approach it jumps at once. (M. H.)

*Melanoplus scudderii* (Uhler).

It was with considerable surprise that this species was recognized in the collections, as the distribution of it is thus extended a considerable distance southward. Six male and sixteen female specimens from Thomasville have been examined, taken November 30, 1903, December 1, 3, 5, 6 and 10, 1903, and December 14, 1902. There is considerable variation in the coloration, some being unicolorous, others sprinkled with small blackish dots and maculations.

Color of live male: Thomasville, November 30, 1903; general colors burnt umber and cinnamon mingled in a pepper-and-salt combination, the paler tint predominating toward the lower surface; lateral bar on the upper part of the prozona seal brown; posterior femora with the external bars not very distinctly marked, the internal bars milky pink and dull seal brown, the whole overcast with the general "pepper-and-salt" suffusion; posterior tibiæ scarlet vermillion; under surface of the body and posterior femora gamboge yellow suffused anteriorly and posteriorly with gray-brown, clear on the basal segments of the abdomen. Female: color much as in the male, but the under surface duller and the pronotum dorsally suffused with fawn color and the lateral bar on the prozona rather indistinct; antennæ reddish-brown, grading from poppy red at the base to maroon apically.

This species is moderately plentiful during the fall months in the pine woods. Its color blends almost exactly with the pine needles,

and it is for this reason that, although it is a slow species at taking alarm and poor at jumping, it is sometimes hard to capture. (M. H.)

**Melanoplus sylvestris Morse.**

This recently described species is apparently represented by three female specimens taken at Thomasville and Metcalfe in September, November and December, 1903. The original specimens were all from western North Carolina. When compared with specimens of *M. islandicus*, females of *sylvestris* can be separated by the precurrent median carina of the pronotum, the broader metazona, the more pronounced sulcation of the frontal costa, and the more quadrate interval between the mesosternal lobes.

Found in the same places as the preceding species, but more agile and easily alarmed. Its coloration affords it even greater protection than that of *M. scudderi*. (M. H.)

**Melanoplus nigrescens (Scudder).**

A series of fifteen males and seventeen females represents this large and rather striking species. All the specimens are from Thomasville, and were taken in November and December. Considerable variation is exhibited in the shape of the cerci of the males.

Color of live specimens: Female; Thomasville, November 30, 1903; general color mummy brown, the "pepper-and-salt" effect caused by a minute speckling of pale wood brown, postocular streak clear mummy brown, eyes mars brown, antennæ with the base wood brown and the apical portion vandyke brown; tegmina with the anal field clear wood brown, discoidal and costal regions mummy brown; stripe on the metapleura and the paler bars on the hind femora eruc drab, dark bars on the femora seal brown; posterior tibiæ blackish basally, dull maroon apically. Male; Thomasville, November 30, 1903; general color clove-brown becoming dull umber on the anal field of the tegmina; lateral lobes of the pronotum and lower part of head deep blue-gray blending into the general tint of the upper surface; eyes mottled clove brown and wood brown; stripe on metapleura and pale bars and spots on posterior femora almost pure white, suffused slightly with grayish toward the dorsal surface; dark bars on the posterior femora and base color of meso- and metapleura solid black; anterior and median limbs similar to the lower part of the head in color; posterior tibiæ apically poppy red, dull on the superior surface, basal portion blackish with a dull reddish-pregenicular annulus; surface of the meso- and metasternum dull glaucous green, of the under surface of the abdomen gamboge yellow.

During November and December I have found this splendid species in colonies among the pine woods. It preferred the vicinity of the scrub oaks, and it was among these that I found a group of over a dozen specimens of this species within the space of a few square yards. The males seemed peculiarly unwary, and occasionally one would be almost trodden before it would jump. Earlier in the season, during the warm fall weather, they probably exhibited much greater activity, for I noticed them to feel cold severely and the slightest cooler weather would greatly thin their numbers. All the specimens I took were probably at their prime several weeks earlier, and from this I conclude that the best time to take this species is toward the latter part of October and during early November. The females were more unwieldy than the males but were very powerful. Both sexes, owing to the shortness of their wings, were wholly unable to fly. (M. H.)

***Melanoplus keeleri* (Thomas).**

This species is represented by a series of twenty males and twenty-nine females taken at Thomasville in September, October, November and December. The intensity of the coloration is quite variable.

This species is found in the same locality and at the same time as the preceding species, but in greater numbers. The males are much smaller than the females, and are therefore less powerful, but they are able to fly well and are occasionally quite shy. The females are usually unable to fly at the time I was collecting as it was late in the season, and all were more or less worn. (M. H.)

***Melanoplus clypeatus* (Scudder).**

Four female specimens of this species from Thomasville, taken August 3 and December 17, 1903, have been examined. They have longer tegmina (22-22.5 mm.) than the female measured by Scudder.

***Melanoplus propinquus* Scudder.**

This is the most abundant species of the genus at Thomasville, and in consequence it is represented by a very large series—three hundred and forty-eight in number. The months represented by the material are January, May, June, July, August, September, October and December.

This species has almost the exact habits of its close northern ally, *M. femur-rubrum*. It is found in great numbers in all open country during the summer and fall and is quite plentiful even in the spring. (M. H.)

***Melanoplus atlantis* (Riley).**

This destructive species is represented by five male individuals from Thomasville taken in April, July, October and December.

This species is common in the corn fields during warm weather. (M. H.)

**Paroxya atlantica** Scudder.

A series of thirteen specimens were taken at Thomasville and Tyty Plantation in June, August, October and December. The males agree very well with two specimens of that sex, one from Ormond, Florida, the other from Florida without further data.

Found along the branches. (M. H.)

**Paroxya floridiana** (Thomas).

This marsh-loving species is abundant at Thomasville in late summer and fall, and is represented by a series of one hundred and sixty-five individuals, taken in July, August, September and December. Considerable variation in color is exhibited by this assemblage, as is usual in the species, but the extremes are connected by numbers of intermediates.

Found in great abundance along all streams and in all damp spots during the warm weather. I took quite a series of tattered specimens of this species in a sheltered spot along the edge of a branch in December, 1903. (M. H.)

**Aptenopedes sphenariooides** Scudder.

This beautiful and common species is found usually in the pine woods among the dead needles and wire-grass. The series comprises two hundred and fifty-six specimens, about equally divided between the sexes. The months represented by the material are January, February, March, April, June, August, September, October, November and December. The species was observed in Leon county in the latter part of March. Some individuals possess but one tegmen, and in a few individuals both tegmina are missing. This latter condition appears to be abnormal, as the specimens are otherwise inseparable, and are quite distinct from a specimen of *aptera* from Miami, Florida. After comparing the types of *A. clara* Rehn<sup>4</sup> with individuals of *sphenariooides*, the former is seen to be immediately distinguishable by the peculiar cerci. Two color phases are present, one purplish-brown, the other a rich paris green. The following notes have been made from living adult specimens. Green phase: female; Thomasville, November 30, 1903; general color paris green, on the under surface becoming pale and on the sides of the abdomen suffused with whitish; eyes mummy brown; antennæ dull crimson, infuscate apically; lateral line on the pronotum and tegmina composed of two colors, above peach blossom

<sup>4</sup> *Ent. News*, XIII, p. 14.

pink, below blackish; lower margin of the pronotum very narrowly lined with white; anterior and median femora of the body color; tibiæ dull crimson; posterior femora with the lateral face of the body color, darkest above; inferior carina white, superior carina bicolor similar to the tegmina, genicular arches black; posterior tibiæ glaucous blue, spines whitish with the tips black. Green phase: male; Thomasville, November 30, 1903; general color of the upper surface paris green becoming apple green on the sides and under surface; eyes mummy brown finely sprinkled with wood brown; lateral lines practically the same colors as in the female, except that the rosy tint is paler on the pronotum than on the tegmina; abdomen with the median portion dull salmon flanked with pure black, the latter carrying a small white spot at the apical margin of each segment; in other respects similar to the female.

Brown phase: female; Thomasville, November 30, 1903; general color of the dorsal surface broccoli brown, overcast with an irregular hoary suffusion of ecru drab, this being limited to the median portions of the segments on the abdomen; lateral lines much as in the green phase, but more subdued and the usual pinkish stripe on the tegmina rather brownish; face, eyes, genæ, lateral lobes of the pronotum, pleura and external faces of the posterior femora, as well as the anterior and median limbs, vandyke brown obscurely scrubbed with broccoli brown; lower margin of the pronotum and lower carina of the external face of the posterior femora whitish; posterior tibiæ maroon. Brown phase: male; Thomasville, November 30, 1903; general color much as in the female, but the hoary suffusion weaker; lateral line well marked and more ecru than pinkish; pronotum with the blackish tint weak; the inferior external carinæ of the posterior femora with a broken white line; superior face of posterior femora scrubbed wood brown; antennæ whitish. Nymph; November 30, 1903; general color wood brown obscurely lined and spotted with mummy brown; upper portion of lateral lobes of the pronotum and postocular region blackish.

I have always found this species prevalent except during the cold weather of late December, January and the greater part of February. This species is to be found almost everywhere in the pine woods, but is more abundant where the wire-grass-grows heaviest near the "branches." The males are very active, springing with alacrity and often alighting on weed stalks and vines a foot or more above the ground, where they remain motionless but watchful, ready to spring to another place if approached. The females, being much heavier, are less spry, but nevertheless sometimes difficult to capture. (M. H.)

## Family TETTIGONIDÆ.

***Arethaea phalangium*** (Scudder).

A single male individual of this species was taken at Thomasville, June 29, 1903.

***Scudderia texensis*** Saussure and Pictet.

This is the commonest species of the genus in the vicinity of Thomasville, and it is represented by a series of twenty-eight specimens representing both sexes. They were taken in May, June, July, September and October.

***Scudderia furcata*** Brunner.

One female and three male specimens represent this species. They were taken at Thomasville in the second week of October and December 14, 1903.

The specimen taken in December was beaten from gall-berry bushes in the pine woods, and was in a battered condition. (M. H.)

***Scudderia cuneata*** Morse.

This recently described species is represented by two male individuals taken at Thomasville, on August 17 and September 10, 1903. This record extends the range of the species east of the type locality—Alabama.

***Amblycorypha oblongifolia*** (DeGeer).

This species is represented by four Thomasville specimens, two males, two females, taken July 29, August 4, 8 and 26, 1903. The males have the tympanum of the tegmina narrower than in Maryland, Delaware and Pennsylvania specimens of the species, but nevertheless do not appear separable.

***Amblycorypha uhleri*** Stål.

One male and one female representative of this species have been examined, both taken at Thomasville, one on July 16, 1903, the other in the second week of October, 1903.

***Belocephalus subapterus*** Scudder.

One female specimen of this species was taken at Thomasville, August 24, 1903. This is the first record outside of the State of Florida.

***Conocephalus atlanticus*** Brunner.

A series of three males of this species from Thomasville have been examined. They were taken September 12, 15 and 17, 1903, and on comparison with paratypes prove inseparable.

***Conocephalus retusus*** Scudder.

A single female taken at Thomasville, September 17, 1903, is referred to this species. The specimen has the tegmina and ovipositor slightly

longer than Scudder's original measurements, but the specimen appears to belong here.

***Conocephalus mexicanus* Saussure.**

Two female specimens of this species were taken at Thomasville, December 3, 1903, in undergrowth in pine woods, and on March 10, 1904.

Both specimens taken were in good condition; the first was taken among the dead brown leaves of a hickory in the pine woods, where it was very conspicuous on account of its bright green color. (M. H.)

***Conocephalus fuscostriatus* Redtenbacher.**

Three male Thomasville specimens of this species have been examined. One is without date, the others were taken March 16 and April 4, 1904, and all are typical representatives of the species.

This species appeared early in March and was soon plentiful in the woods, especially in the broom sedge in damp locations. The specimens, when pursued, always took to wing and made off with a strong but zigzag flight, never alighting until quite a distance had been traversed. I followed one specimen for several hundred yards across a field and finally lost sight of it, as it had flown up until some forty feet above the ground, and could not be followed by the eye in the twilight. The males begin their serenade just as dusk begins to fall and keep up a continuous zeeeeee late into the night. Their song is, however, not nearly so ear-splitting as that of *C. mexicanus*. (M. H.)

***Orchelimum glaberrimum* (Burmeister).**

This large species is represented by a series of thirty-one individuals representing both sexes. They are all from Thomasville, taken in August and September, 1903. A considerable amount of variation is exhibited in the intensity of the brown markings on the pronotum.

***Orchelimum nitidum* (Redtenbacher).**

A series of fifty-seven specimens of both sexes represents this species. They are all from Thomasville, taken in August and September, 1903. The remark made under *O. glaberrimum* regarding markings on the pronotum applies with equal force to this species.

***Orchelimum nigripes* Scudder.**

A single female of this species was taken at Thomasville on August 4, 1903. This is the first record for the Gulf States.

***Orchelimum cuticulare* Serville ?**

A single male individual, taken at Thomasville on August 28, 1903, is very doubtfully referred to this species.

**Xiphidion fasciatum** (DeGeer).

This widely distributed species is represented by a series of ninety-five specimens, all from Thomasville. The months represented are June, August, September, October and December (one specimen), 1903.

I took but one specimen of this species, that in December, 1903. It was procured among tall grass in a swampy hollow. (M. H.)

**Xiphidion brevipenne** Scudder.

Three females and four males of this species from Thomasville have been examined. They were taken in August, September, October and December, 1903.

The single specimen of this species which I took in December, 1903, was secured in the damp undergrowth of the pine woods near a "branch." (M. H.)

**Xiphidion saltans** Scudder.

Two females and five males of this species are included in the material studied. They were taken at Thomasville in September, October and November, 1903, the one taken in the latter month being from meadow land.

**Odontoxiphidium apterum** Morse.

This recently described genus and species is represented by a series of twenty males and twenty-two females, all from Thomasville, taken in September, October, November and December, 1903. Those individuals bearing information in addition to the date and locality are labelled as having been taken in undergrowth in pine woods. The series agrees very well with the description, exhibiting the color variation noted in the original series.

The specimens which I took of this species were all captured in the wire-grass of the pine woods. Although active, they were easily captured. (M. H.)

A male specimen of this species from Brunswick, Glynn county, Georgia, taken September, 1881, is in the collection of the Academy.

**Atlanticus gibbosus** Scudder.

As far as can be determined from the very inadequate description and the immature condition of the majority of the twelve specimens examined, I should refer the representatives of this genus to *gibbosus*. But one individual, a female, is fully grown, the others being in such condition as make them almost useless for study. The dates represented are March 16, 17, 22, 23, 24 and 29 April 9, July 23 (adult) and December 10, all from Thomasville.

In December, March and April I have found immature individuals of this species plentiful in the pine woods, where they live among the

wire-grass. I found many in the locality which yielded the large series of *Gymnoscirtetes pusillus*. (M. H.)

***Ceuthophilus virgatus* n. sp.**

Types: ♂ and ♀; Thomasville, Thomas county, Georgia. August 13, 1903. Collection of Morgan Hebard.

Closely allied to *C. secretus* Scudder, but differing in the longer median internal calcaria and the much shorter ovipositor. Relationship also exists with *C. varicator* Scudder, but that species has the first tarsal joint as long as the others united, as well as having a long ovipositor.

Size medium; body compressed. Head with the occiput declivent, vertex somewhat flattened; interspace between the eyes equal to the long diameter of one of them; eyes inverted subpyriform; antennæ rather short and rather heavy, but slightly longer than the body; terminal palpal joint distinctly longer than the third. Pronotum strongly compressed; anterior margin with a slight median emargination, posterior margin truncate; lateral lobes slightly longer than high, inferior margin moderately arcuate, the anterior angle by no means as apparent as the posterior; surface of the pronotum as well as the mesonotum and metanotum obscurely tuberculate, more pronounced in the female than in the male. Abdomen strongly compressed, the exposed portion of each segment roughened and picked. Cerci short, thick basally, tapering. Ovipositor short, thick basally, apical half subequal, margins almost straight, superior angle produced into a distinct spiniform process, internal valves with five apical spines. Anterior femora a third as long again as the pronotum, armed on the anterior inferior margin with 3-0 spines, unarmed on the posterior margin. Median femora about equal to the anterior in length, armed on the anterior margin with three spines which are larger in the female than in the male, and increase in size distally, posterior margin armed with two or three spines. Posterior femora thick and short, strongly bullate, the apical third slender, inferior margins with irregularly disposed serrations, intervening sulcus comparatively broad; posterior femora distinctly more than a tenth longer than the femora, not bowed, spurs large, median calcaria extremely long, the internal equalling the metatarsus; second and fourth tarsal joints subequal, third decidedly less than half the length of second; metatarsus shorter than the other joints united.

General color cinnamon overlaid with bistre, the superior surface of the posterior femora with distinct diagonal bars of the two tints; under surface with little of the overlying tint.

*Measurements.*

	♂	♀
Length of body, . . . . .	14.2 mm.	19.5 mm.
Length of pronotum, . . . . .	4.2 "	6 "
Length of posterior femora, . . . . .	13.5 "	17.2 "
Length of posterior tibiae, . . . . .	15 "	19 "
Length of ovipositor, . . . . .		7.2 "

A series of nine specimens of this species, including the types, has been studied.

As all the specimens of this species were collected in my absence from home, I can only state that they were taken in a heavy swamp. (M. H.)

Family **GRYLLIDÆ**.**Gryllotalpa borealis** Burmeister.

Several specimens of this species from Thomasville have been examined, taken March 25, August 31 and September 11, 1903. An individual was taken just over the line in Leon county, Florida, on March 17, 1903, in a very peculiar situation—a distance up a cherry tree.

**Tridactylus terminalis** Scudder.

Two individuals of this species were taken at Linton's Pond, near Thomasville, one on March 18, and the other April 10, 1904. The exact locality was a sloping sandy beach constantly dampened by the flow of several springs, situated in an overhanging bank and close to a stream.

Diligent search revealed two other specimens of this species, but owing to the absence of a net at the time they readily escaped. (M. H.)

**Ellipes minuta** (Scudder).

This species was found in several places in the vicinity of Thomasville and in Leon county. The locations are moist meadow land or sandy beaches, and here this active little species was very numerous. At Linton's Pond it was taken on April 10, and in northern Leon county on March 22. Nine specimens have been examined.

**Cycloptilum squamosum** Scudder?

A single male specimen is questionably referred to this species. It was taken at Thomasville, August 13, 1903. The condition of the specimen is such that accurate identification is impossible, but the description of *squamulosum* contains nothing radically different from the specimen examined.

**Nemobius maculatus** Blatchley.

This species is represented by a series of fifteen individuals of both sexes, taken at Thomasville. The months represented are June, July,

August, September, October, November and December. As is usual with the species of this genus a great amount of variation in size is noticed in the series.

All the specimens of this species which I took were captured among the weeds of an unused field and in the grass in our yard. The males stridulate continually, and their constant *creeee-creee-creee* may be heard from every side on a warm day. This species fills the place which is occupied by *Nemobius fasciatus* in the North. (M. H.)

***Nemobius socius* Scudder.**

This striking form is represented by one male and ten female specimens, all taken at Thomasville in May, June, July and September. But two of the specimens are brachypterous, the other nine possessing caudate wings.

These specimens were collected at night about the arc lights, to which they were attracted by the light. (M. H.)

***Nemobius ambitiosus* Scudder.**

The beautiful but subdued coloring of the male of this species makes it an easily recognized form, and a series of thirty individuals of both sexes have been examined. They were taken at Thomasville in February, March, April, October, November and December. In the spring of 1903 several individuals were taken in Leon county. There is some variation in the depth of color in the females, ranging from dull blackish to blackish brown and umber.

This beautiful species is ever present, being astir on the coldest winter days. I heard one specimen stridulating in the pine straw on a morning when the mercury had just risen above freezing. The sound produced by the males is quite different from that of any other species, but it would be indeed difficult to describe the pitch which makes it so. (M. H.)

***Nemobius cubensis* Saussure.**

This species, which bears quite a superficial resemblance to *N. socius*, is represented in the collection by five specimens, one male and four females, the male individual being referred here with a little doubt. All the specimens were taken in May and June, 1903, at Thomasville.

***Nemobius exiguum* Blatchley.**

It was with considerable surprise that this species was recognized in the material studied, but a series of forty-seven specimens appear to be perfectly referable to this species, previously known only from Indiana. Thomasville individuals were taken in January, February and December, and one specimen was collected at the Ocklockonee river on March 29, 1904.

This species was very plentiful in certain localities in the pine woods along the branches, where the ground was low and marshy. The series of forty-seven could easily have been doubled. (M. H.)

**Nemobius carolinus** Scudder.

Thirteen specimens, five males and eight females, represent this beautiful species. They were all taken at Thomasville in December on sphagnum.

All of these specimens were taken at Thomasville during December in beds of sphagnum. The specimens were wary, and when in danger would hide in the sphagnum, from which they could then be easily taken. The bright lacquer color of the head, legs and body of these distinguished them at a glance from all other species. (M. H.)

**Gryllus pennsylvanicus** Burmeister.

Four specimens of this species are contained in the collection, two males and two females, from Thomasville, taken on August 29, 1903.

**Gryllus rubens** Scudder.

This species, which was described from a single female individual from Auburn, Alabama, is represented by a series of sixty specimens, almost equally divided between the sexes. They are all from Thomasville, taken in July and August; one immature individual, however, having been taken in March. A great amount of variation is exhibited in the intensity of the color pattern, some individuals having the dull reddish markings on the lateral portions of the pronotum obsolete, and the red on the posterior femora is more extensive in some individuals than in others.

**Gryllus luctuosus** Serville.

Specimens of this species from Thomasville, taken in May and June, 1903, have been examined.

**Œcanthus quadripunctatus** Bentenmüller.

This species is represented by a series of one hundred and twenty-two specimens from Thomasville. The months represented are June, September and October. Considerable variation is exhibited in the pattern and intensity of the black markings on the basal joints of the antennæ.

**Anaxipha exigua** (Say).

Three specimens of this species, one male, two females, have been examined, all taken at Thomasville in April and July. The females are slightly larger than Pennsylvania specimens.

**Falcicula hebardi** Rehn.

This interesting species is represented by a series of fifteen males, ten females and four immature individuals. The months represented are March, April and July. The immature individuals are considerably darker and more wine-colored than the adults, and are longitudinally striped with dark brown which gives them a rather peculiar appearance.

This species, although restricted to colonies among the wire-grass of the pine woods, may be taken in numbers at the right time of year. Although very active and resembling the wire-grass closely in color, they are easy to capture with the aid of a net. I noticed them to jump from clump to clump of the grass, clinging to the topmost blades. Both sexes are equally agile. (M. H.)

**Hapithus brevipennis** Saussure.

This species, which was described from Georgia and Louisiana, is represented by three adult males, two adult females and three immature individuals from Thomasville. The months represented are July, August and October. The males have the stripe on the margin of the dorsal field much more richly colored than in the females.

**Orocharis gryllodes** (Pallas).

This beautiful species is represented by a series of four male and seven female specimens, taken at Thomasville in December, 1903. One female individual is uniformly colored as in the males, but the others are sprinkled with umber. This species is easily separated from *O. saltator* by the broader and subequal pronotum and the greater number of rami of the mediastine vein.

All of these specimens were taken from under sign boards on oak trees, where they were evidently hibernating. On one occasion several specimens were taken from under the same sign. (M. H.)